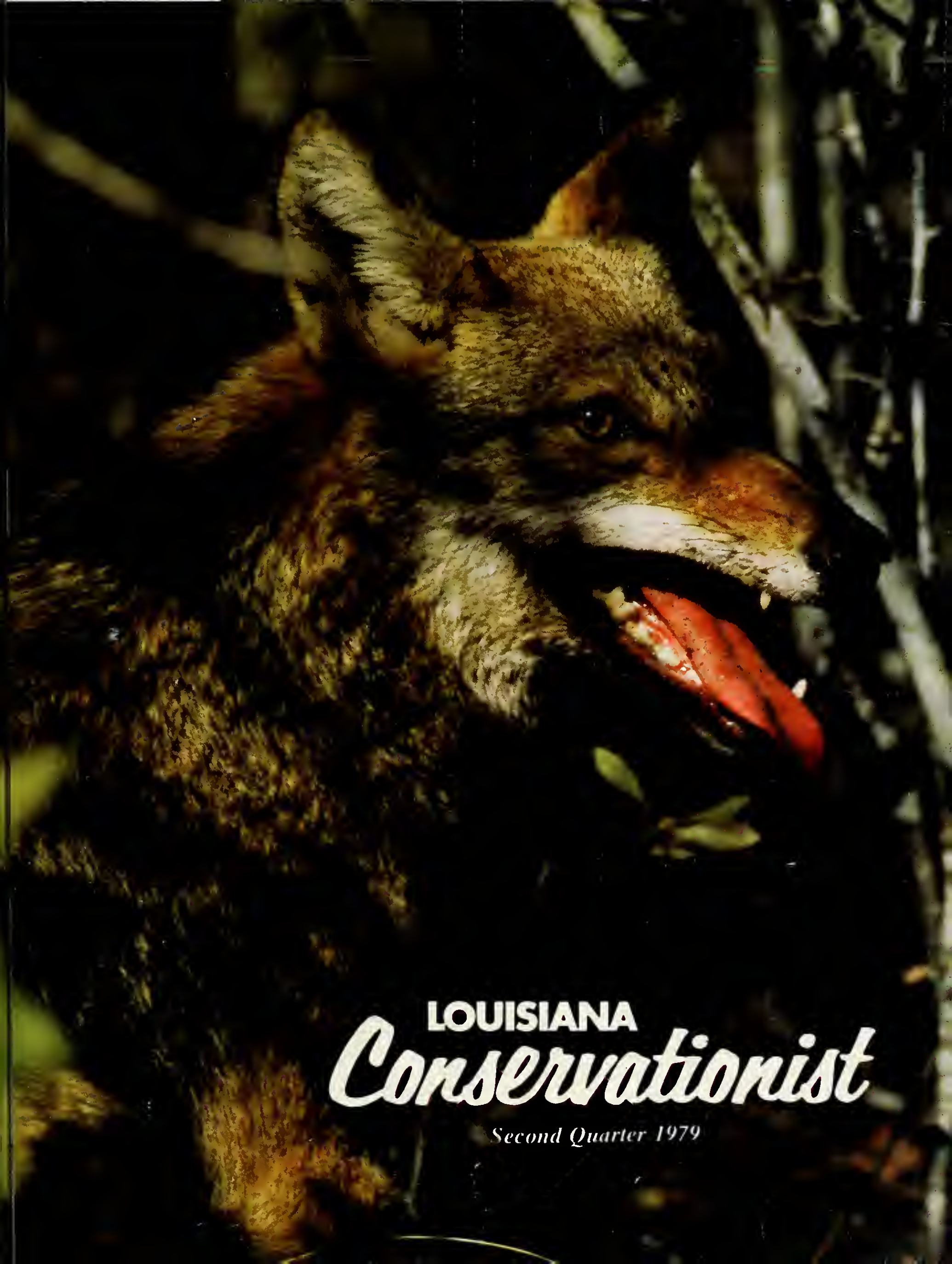


LOUISIANA Conservationist

Second Quarter 1979

EDWIN W. EDWARDS, *Governor*

...comments

> A nation may be said to consist of its territory, its people, and its laws. The territory is the only part which is of certain durability.
>
> — Abraham Lincoln

J. BURTON ANGELLE, *Secretary*

Acts 230 and 231 of the recent Louisiana Legislature will be regarded in time as two of the most significant actions of Gov. Edwin Edwards and the Legislature to meet the growing need of the state's citizens for public places in which to enjoy wholesome outdoor recreation.

These acts not only give immediate impetus to the land acquisition program of the Department of Wildlife and Fisheries, but project the department's land program for wildlife management areas well in the 1980's.

Outright purchase of woodlands and wetlands that are permanently dedicated to public use for outdoor recreation is the only way to assure present and future citizens of Louisiana places to hunt, fish, hike, visit, and engage in numerous related outdoor activities.

If I was asked today to single out the most important ongoing program of the department for the greatest number of people in the state, I would say it is the land acquisition program.

The value of the lands being purchased under the program can not be overemphasized when I speak of their importance to all the people of Louisiana.

While they afford excellent hunting and fishing opportunity to hundreds of thousands of sportsmen in Louisiana, records of the department show the largest number of users of wildlife management areas are not hunters and fishermen. The greatest number of visitors to WMA's are persons interested in other things such as birdwatching, outdoor photography, canoeing and similar outdoor activities.

Act 231, popularly known as the capital outlay bill, provides funds to the Department of Wildlife and Fisheries for the immediate purchase of a tract of land in St. Tammany Parish known as the Iwana tract.

The 8,000-acre tract in southeast St. Tammany Parish adjoins the 26,716 acre Pearl River Wildlife Management Area, and will form its southern boundary.

It will provide the present wildlife management area with thousands of acres of key wetlands, as well as 700 acres of additional cypress-gum-oak forested lands.

The marshland being negotiated for by the department represents an important spawning and nursery area for many species of fish, both freshwater and saltwater varieties.

The area is an important one for waterfowl, providing both feeding and resting areas for ducks, geese and coots, as well as year around habitat for mottled ducks.

In addition to deer, marsh rabbits and squirrels in the wooded areas, the proposed addition to the Pearl River Wildlife Management Area will provide good hunting for rails, gallinules, snipe, woodcock, ducks, geese and coots.

Numerous rivers, bayous, streams and ponds found throughout the tract will provide excellent fishing for bass, bream, crappie, blue catfish and redfish. It is a popular area for crabbing and an important shrimp nursery ground.

The scenic marsh area is also used by blue herons, Louisiana herons, common and snowy egrets, ospreys, white ibises, as well a songbirds and shorebirds.

Act 230, known as the Omnibus Bond Authorization Act of 1979, calling for implementation of a five-year capital improvement program, earmarks approximately $17,000,000 to be available in the next five years for additional wildlife managment areas.

These companion acts, supported by Gov. Edwards and members of the Legislature, have provided a shot in the arm for the department's land acquisition program, assuring its continued progress.

This is heartening at a time when the need for additional public land for outdoor recreation is becoming more pronounced. National statistics reveal that each year finds more individuals seeking recreation in outdoor pursuits. It is gratifying to know that state officials and legislators recognize the importance of wildlife managment areas to the wellbeing of the people of Louisiana and have provided the basis for a long range program.

This financial boost to the department's WMA program also comes at a time when growing concern is expressed at the speed with which forests are being cleared and wetlands drained for other use.

In years ahead, as additional wildlife management areas are acquired in various parts of the state, the people of Louisiana will be even more grateful that Gov. Edwards and the Legislature had the vision and determination to take action while it is still possible to do so.

EDWIN W. EDWARDS, *Governor*

J. BURTON ANGELLE, *Secretary*
HURLEY L. CAMPBELL, *Deputy Secretary*
LYLE S. ST. AMANT, *Assistant Secretary*
MARIAN "PIE" PENDLEY, *Executive Assistant*

WILDLIFE AND FISHERIES COMMISSIONERS

DOYLE G. BERRY, *Chairman, Berwick*
DONALD WILLE, *Vice-Chairman, Bossier City*
JAMES C. FARRELLY, *Metairie*
JEAN LAPEYRE, *Houma*
CHARLES A. RIGGS, *Hackberry*
J. C. GILBERT, *Sicily Island*
HARVEY CLAY LUTTRELL, *Buckeye*

DIVISION CHIEFS

ALLAN ENSMINGER, *Refuge/Fur*
JOE L. HERRING, *Game*
ROBERT LaFLEUR, *Water Pollution*
HARRY SCHAFER, *Seafood*
KENNETH C. SMITH, *Fish*
VINCENT PURPERA, JR., *Enforcement*

BOB DENNIE, *Information Officer and Editor*
McFADDEN DUFFY, *Assistant Information Officer*
FRANK DAVIS, *Associate Editor*
LLOYD POISSENOT, *Photo Editor*
JULIA MURCHISON McSHERRY, *Staff Writer*

Second Quarter Edition — 1979

Louisiana Conservationist
[ISSN 0024-6778]
Volume 31, No. 2
400 Royal Street
New Orleans, Louisiana 70130

Published by the Department of Wildlife and Fisheries in the interest of conservation of Louisiana's natural resources.

LOUISIANA Conservationist

IN THIS ISSUE

TEACHING OUR TEACHERS—A New Outlook on Outdoor Education ... 4
Conservation educators are expanding their programs. This article portrays a unique, progressive concept in environmental education ... the outdoor classroom. *By Julia Murchison McSherry*

FISHING THE LIGHT STUFF 8
Ultra-light tackle is the sportingest way to catch bream, bass, and other lightweight species. This story tells how a cane pole angler became an ultra-light convert. *By Frank Davis*

PROFESSOR WITHOUT PORTFOLIO 12
A fascinating profile of a self-made ichthyologist who has compiled 23 volumes of scientific data on marine fishes of the Gulf Coast. *By McFadden Duffy*

OUTDOORS AT THE MOVIES 16
A look at the department's in-house film program. *By Clany Soileau*

WILD PETS AND RABIES 18
Wild animals are carriers of rabies and should not be kept as pets. A professor of veterinary medicine and a wildlife biologist explain why. *By Charles J. Issel and David E. John*

GRASS SHRIMP 24
A biological portrayal of one of the best natural baits for sport fishermen. *By Jay V. Huner*

1979 LEGISLATIVE ACTS 28
A digest of new legislation affecting sportsmen.

PIE'S POTPOURRI 30
These recipes feature clams, a new arrival on the Louisiana seafood scene. *By Marian "Pie" Pendley*

SPANISH MACKEREL 31
This silvery, feisty gamefish is a favorite amongst Louisiana anglers.

Front and back covers by Lloyd Poissenot.
Lithography by Century, New Orleans

The Louisiana Conservationist is published quarterly by the Louisiana Department of Wildlife and Fisheries, 400 Royal Street, New Orleans, LA 70130. Postmaster: Send address changes to Louisiana Conservationist, 400 Royal Street, New Orleans, LA 70130.

TEACHING OUR TEACHERS

Glen Williams

A NEW OUTLOOK ON OUTDOOR EDUCATION

By Julia Murchison McSherry

One group of four campers, bundled up in sweaters and light jackets to combat the brisk winter chill, busily cut out one end of a number ten can, the size used in school cafeterias. With the tin snips, a 3 x 3 inch door was cut. At the closed end of the can, several smoke holes were punched around the sides with a blunt object. A small candle was inserted and the tin can stove was finished.

The students learned that this home-made cooker is an excellent item to use in preparing quick easy meals when fuel is scarce.

Nearby, a second team was playing "the beginner's compass game," plotting a course along eight labeled markers placed in a large circle. Each participant seemed intent upon following instructions marked on a small card as they followed bearings from marker to marker around the course. No two instruction cards followed the same route and each person, compass in hand, anxiously attempted to be the first to accurately interpret all designated bearings and become the first to finish the game.

These students were learning orienteering or how to use a compass to keep from getting lost.

A third group pounded hammer on nail to finish the woodduck box they were building. They were learning awareness and appreciation of wildlife and the outdoors.

If you think this sounds like a children's camp activities session, you're wrong . . . yet partially right. It's an outdoor classroom, a unique, progressive concept in environmental education, but not for children. The students here are teachers and their workshop is designed to give them practical outdoor knowledge to pass on to children in their classes.

These teachers were participating in a special outdoors respect workshop, the first of its kind in Louisiana. It was held last December in Woodworth, sponsored jointly by the Louisiana Department of Wildlife and Fisheries and the Safari Club International Conservation Fund. It was held in an outdoor setting, in the heart of beautiful Kisatchie National Forest.

Environmental respect is an effort to assist concerning laymen and educators in establishing programs in schools dealing with outdoor safety and awareness. A group of twenty-five educators (teachers, school principals, 4-H leaders, and cooperative extension agents) returned home after the workshop better prepared to instruct their classes and organizations, not through classroom lecture but through personal experience and lecture-demonstration.

According to David Knotts, executive director, Safari Club International Conservation Fund, who along with Hugh Burts, education specialist with the Department of Wildlife and Fisheries, was responsible for initiating this program in Louisiana, this new approach is a hands-on learning situation. It teaches theories and principles of outdoor recreation as well as basic skills in the shooting sports and outdoor survival.

Glen Williams

Teachers at outdoors workshop learn conservation awareness, survival techniques, and wildlife appreciation. (Above) Participants build woodduck boxes. (Below) David Knotts, executive director, Safari Club International Conservation Fund, demonstrates flint and steel fire making.

Glen Williams

The idea behind it is to more amply reach urban-oriented populations to expose these people to outdoor skills and an understanding and appreciation of the outdoors.

"We feel that objection to hunting comes from lack of opportunity to build proper concepts of wildlife management and conservation. We hope to instill in teachers proper ethics and respect for the outdoors," Knotts proclaims.

The program is designed to enhance existing curriculum in schools by providing activity-oriented instruction to supplement classroom lecture.

Knotts believes that a child retains 35 percent of what he hears but 65 percent of what he learns through participation. By teaching our teachers to use outdoor visual and participation techniques, it becomes easier to reach more children to teach them outdoor principles such as hunting and boating safety, survival, and conservation.

Louisiana Wildlife and Fisheries has had a hunting safety program for the past 18 years. However, in the last few years, the format has undergone some significant changes. Rather than attempting to reach each and every child in the classroom, the department has initiated the approach of educating teachers.

Lloyd Poissenot

New Department of Wildlife and Fisheries programs train teachers in basic outdoor skills. (Above) Hugh Burts, wildlife and fisheries education specialist, assists students in compass reading. (Below) Teachers at Woodworth workshop practice shooting techniques.

Glen Williams

Since the teachers have direct daily contact with students, they can teach outdoor education . . . if they have the know-how. Teacher education college curriculums have not in the past included outdoors courses, therefore this teacher education program is a dynamic step forward for conservation education.

Huey Sanders, Department of Wildlife and Fisheries education officer, is enthusiastic about the new program. He believes that in these days when preserving environment, wildlife habitat, and wildlife and fisheries resources is essential, it is imperative to teach conservation to the teachers who can in turn pass their knowledge on to their students.

"The Woodworth workshop was unique because it was more comprehensive than our past workshops," Sanders explains. "We are interested in these courses because if we motivate the teachers they can help us teach children we otherwise couldn't reach. We are limited in manpower with only one department wildlife education specialist for each eight-parish district in the state."

In recent years, these department education specialists have certified volunteers from schools and other agencies to teach hunting and outdoor education. The department has also worked closely with several universities in setting up teacher workshops as accredited courses. Last year, these workshops reached around 120 teachers, mostly science and history. They offered a rare opportunity for school teachers to pick up graduate and undergraduate college credit in just a few weeks during the summer. And the workshops were fun too, providing first hand experiences in many areas, including wildlife, forestry, water quality, soil conservation, and environment.

To the delight of the education specialists, more and more school boards are actively encouraging such programs. Environmental workshops are being conducted on a parish-wide basis throughout the state. In addition, through the hunting safety program, instructor training courses for physical education teachers are being conducted.

What it all amounts to is this: more and more youngsters will be able to receive proper outdoors training. It is vital that hunters, for example, get this training as youngsters to form good habits and attitudes at an early age and carry them into adulthood. It is important for parents to teach their children hunting and boating as well as conservation and outdoor appreciation.

It is even more important that they encourage their children to complete hunting safety courses because these safety instruction programs, taught by professionals who are experts in the outdoors field, can offer a wide scope of material. These instructors not only teach students how to safely handle a boat or fire a gun, they emphasize hunter ethics and outdoor responsibility and the sportsman's role in wildlife management.

The key to the success of educating the masses is to first educate the teachers.

The Woodworth Outdoor Respect Workshop was comprehensive. Not only did it include segments on orienteering, stove building, and woodduck boxes, it covered wilderness survival, camping on a budget, flint and steel fire making, sharpening and caring for outdoor knives. Shooting sports, camping techniques, wildlife management, conservation, hunting and boating safety were also included. In other words, just about every phase of the outdoors.

One indication of the success of the Woodworth workshop is the enthusiastic response of participants. Each one carried their newly acquired experiences back to their schools for use in classroom instruction and even in setting up new programs of their own.

Janis McDaniel, home economist with East Baton Rouge Cooperative Extension Service, has presented camping and survival demonstrations at fifteen 4-H club meetings to a total of approximately 400 members. She also utilized wildlife conservation information acquired at Woodworth in workshops conducted for elementary and high school 4-Hers and Campfire Girls.

Cynthia Lowe, Madison Parish Cooperative Extension home economist, has planned a week long half-day camp using many skills she learned at Woodworth. Compass and map reading, camping etiquette, home-made camping equipment, gun safety, and a fishing class are some of the main activities scheduled.

Lloyd Poissenot

Teachers carry their outdoor experiences back to the classroom. Stephanie Bourgeois (above) and Pat Pope (below) physical education instructors at Broadmoor High School in Baton Rouge, assist their students in compass field games.

Lloyd Poissenot

"Planning this camp has made me so excited I can hardly wait to present it," she exclaims.

Dr. Patricia Johnson, associate professor of Health and Physical Education at the University of Southwestern Louisiana, has plans underway to incorporate an environmental respect unit in personal and community health classes at USL. She has high hopes of initiating future statewide workshops for other physical education teachers.

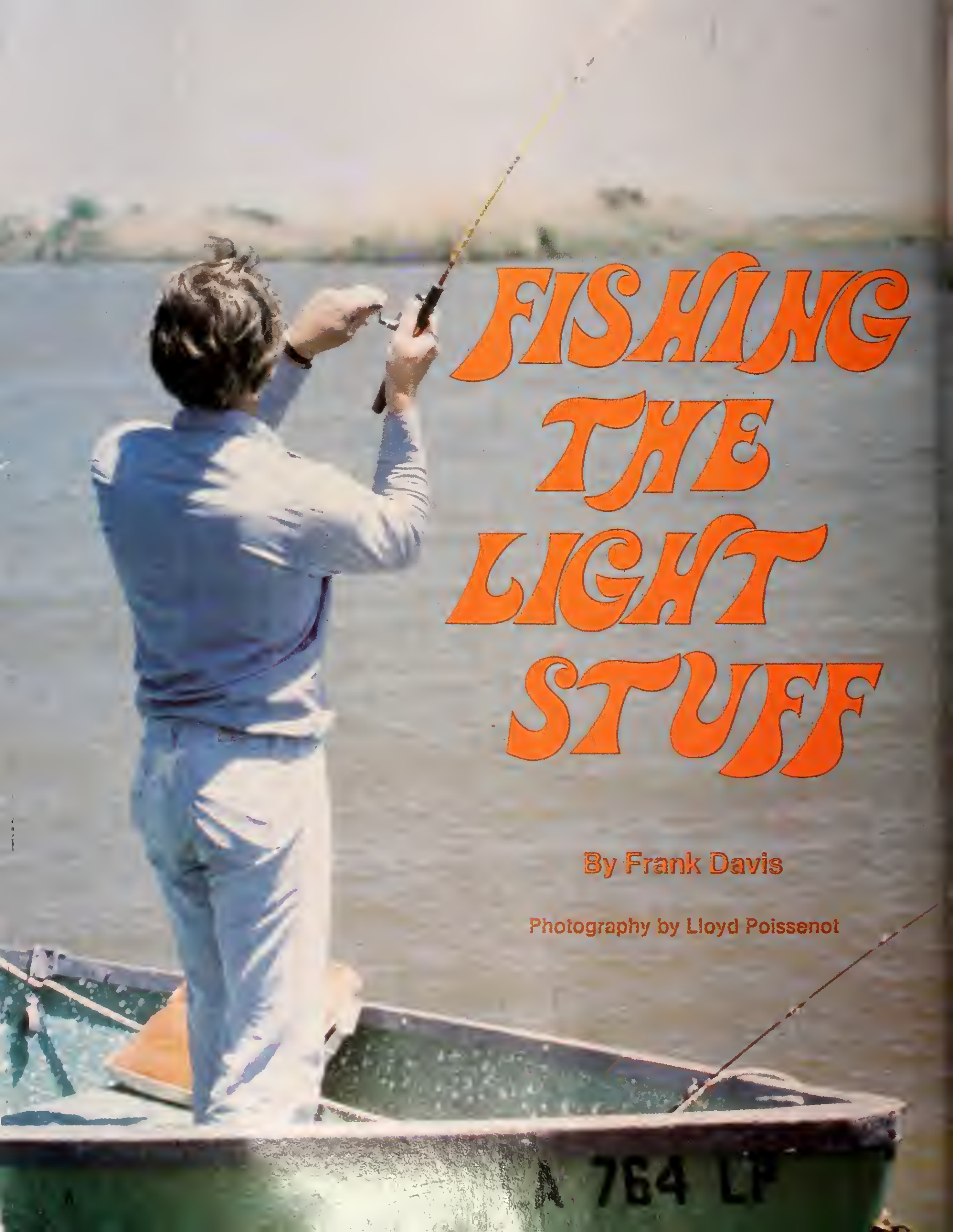
Father Sean Rooney, assistant principal at Archbishop Shaw High School in New Orleans, conducts outdoors oriented activities through science club and wildlife ecology class. He has taken students on outdoors field trips to nearby woods and marsh to observe wildlife in a natural habitat. He also regularly arranges shooting instruction on outdoor rifle ranges.

Stephanie Bourgeois and Pat Pope, physical education instructors at Broadmoor High School in Baton Rouge, have begun comprehensive hunting and boating safety units as part of their regular course work. They feel that outdoor safety instruction should be a primary concern in such classes. They also include orienteering in these units, using outdoor compass field games they learned at Woodworth.

Both teachers feel that these are vital subjects and would like to see them taught in other physical education classes around the state. They encourage other teachers to participate in outdoor respect workshops to learn about Louisiana's wildlife resources and outdoor recreation.

The list of benefits and active programs resulting from Woodworth goes on. It is evident that good things are happening in the field of conservation education.

It is imperative that horizons continue to be broadened to teach our teachers environmental education. They in turn have the responsibility of passing the concept of outdoors respect to thousands of students throughout Louisiana.



FISHING THE LIGHT STUFF

By Frank Davis

Photography by Lloyd Poissenot

The fish struck like a savage!

"Keep the tip high, Josh!" Tom Corbett yelled as a large bow formed in the thin rod. "That scoundrel's mad — and he's gonna head for the bottom!"

Joshua Gavin knew what to do though. He'd had experience with letting a fish run when the run was on. He knew about thumbing the spool and fingering the drag. And he was ready to play his catch for as long as it took to get it tired and into the boat.

"Tom, you'd better get ready with the net," he instructed, tight-roping his way around the gunwales as the fish swam from the front of the boat to the back. "I ain't never gonna get this critter out of the water without a net! Line will break for sure!"

Tom mumbled something under his breath and picked up the webbing, holding it just above the water surface. He tried to stare through the coffee-colored depths, obviously impatient that Joshua didn't just winch the fish up.

"What are you foolin' around for?" he prodded.

"Will you be cool for a minute! Joshua came back.

Seconds later, with all the finesse of a Southern gentleman-gambler, Joshua put his expertise to work and slowly — in a pumping manner — raised the fish to within inches of the net.

"Okay — now you can get him!" he ordered.

Tom scooped. And just in time. No sooner was the rim of the net under the fish when the line snapped.

"Told you I'd need a net for this one!" Joshua smiled.

But Tom wasn't smiling.

"Yea — and you almost lost a good fish messing around with that flimsy stuff. Will you put it down and use the cane pole to catch these perch?"

"Tom, how many times I gotta tell you it isn't called flimsy stuff? It's ultra-light tackle . . . and it's the most popular and sportingest way there is to fishing."

Joshua baited up another cricket and cast again.

"And besides . . . I'm catching more fish than you are anyway," he joked.

Tom just shook his head and snapped the line on his cane pole back into the brush. There was a silence for a moment or two, but he wasn't going to give up so easily.

"When did you start using this ultra-thin anyhow?"

"Ultra-*light*, Tom . . . ultra-*light*!"

"Ultra-whatever! You never used to fish with all that new-fangled junk."

"See — shows you how much you know. Ultra-light isn't new-fangled and it's not junk. It's a special method of fishing that got started back in the 1930's in France. The French called it *lancer leger*, which means light casting. Then in 1948, it was brought into the United States and used in a freshwater technique called *hairlining*, where you cast out tiny lures on really light line — about two pound test or less — and present them so they lightly touch down without a splash."

"Oh — that's what you're doing . . . *hairlining*?"

"No, I'm not hairlining — I'm just getting the maximum amount of sport out of fishing for bluegills."

"Aw, bull!"

Tom yanked another bream out of the brush.

"Bull, nothing!" Joshua insisted. "You see that fish you just caught?"

"What about it?" asked Tom.

"Well, you watched the cork go under, and you set the hook, and then you just whipped him right into the boat — no effort."

"He's in the boat, ain't he?"

"Yea — but wouldn't you have had more fun if he had run and dived and wrestled and put up an out and out fight?"

"Hey — he only weighs nine ounces! Whadaya think I'm fishing for here . . . tarpon?"

"No, but they could feel like tarpon on ultra-light!"

"Yea, and they could get away like tarpon too on that dumb two-pound-test monofilament you're using."

"It's four pound test and they won't if you play them right." Joshua paused for a moment. "And . . . not if you know *how* to fish."

"You know what, Josh? You're getting on my nerves. All I did was come out here to catch some perch — and instead I feel like I'm making a segment for *The American Sportsman* and you're Curt Gowdy!"

"Okay, okay — I quit. Go ahead and fish with your broom stick and steel cable. See if I care if you have fun or not," Joshua taunted. Seconds later he had another bream on the line and was fingering the drag to slow him down.

"Hey, Tom — uh, would you get the net again?"

Tom jerked the line on his cane pole out of

"I'm used to a cane pole. I don't know about this new-fangled ultra-light!"

"Cane poles are fine but ultra-light spinning tackle gives maximum amount of sport out of fishing for bream, bass, and other lightweight species."

the water, pinned the hook into the base of the rod, and threw it down in the boat.

"You know what, Josh . . . get your own net? And what's more, I'm gonna use that other ultra-light rig you got up there. Danged if I'm gonna spend all day netting your fish!"

Josh smiled, handed Tom the extra rig, and boated his bream. A few minutes later there was a whole new twist to the conversation.

"Okay, now — how do you use this thing?"

"Just like any other rod and reel, Tom. The only thing you gotta keep in mind is that you have very light line and you have to fish it, not horse it. All it takes is a bit of practice."

Tom baited a cricket, lifted the bail on the reel, and cast the bait toward the treeline.

"Hey, it's got a nice feel to it — so light!" he said.

"Sure it has — a good ultra-light rod and reel combination rarely weighs more than six ounces. So that gives you a rod that averages about five feet long and weighs three ounces, and a reel that seldom goes over four ounces. And because it's so lightweight, you can cast all day without ever getting tired."

"That's the whole story right there?"

"No — the light weight is also necessary for casting tiny lures . . . everything from 1/20 to 1/8 of an ounce. And you'll get good distance with it, too!"

"Where'd you learn all this stuff? You sound like a tackle rep!"

"Oh — I got hung up on ultra-light a few years ago . . . fishing for trout at Cocodrie."

"Wait a minute!" Tom interrupted. "You tellin' me you can use this rig, with four pound test line, on the trout you'll catch at Cocodrie?"

"Well, of course you can," Josh answered. "That's where you find out what kind of fisherman you are — there's no way you're gonna use ultra-light tackle the wrong way wen you got two trout on."

"Josh, you're lying! It's impossible to land two trout on four pound test monofilament! It's too flimsy!"

"That's what most people think, but it's not true. All you do is fish the tackle right."

"Whadaya mean *right*?"

"Okay — regardless of whether you're fishing bream, bass, catfish, trout, flounder, or whatever . . . when you use ultra-light tackle you first have to make sure you've got good quality — the cheap stuff don't cut it."

"Wait a minute — I got a bite! Tom interrupted. Moments later, he was hooting and hollering and gently coaxing a good-size bluegill toward the boat. "Now *you* get the net!"

"Fun, hugh?" Josh boated Tom's fish.

"Yea — this is nice."

"Anyway, like I was saying, Tom, there are techniques for fishing ultra-light. First — good quality tackle and good line. Then, you set the drag on the loose side and —."

"Wait — loose side meaning so the line peels off easy?"

"Right."

"But how are you gonna set the hook and keep the fish from running off with all the line if the drag ain't working?"

"You finger the spool — it gives you that tad more resistance you need."

"That's dumb! Why not set the drag properly to start with instead of sticking your fingers all up in it."

"Because if you use the drag, when a fish strikes all the stress takes place on the few inches of line that comes off the roller on the bail. And a fish strike isn't like you easing line off to test your drag — it's an instant strain

An extra ultra-light rig will sometimes win a convert.

Ultra-light tackle is the most popular and sportingest way there is to fishing.

. . . sudden, with a lot of force. On heavier gear, like 20 pound test line, drag set isn't so critical if it's off a notch or two. But on two pound test, a wrong drag setting could mean half of your line strength. And you'll end up with broken line every time."

"Okay, so it's not dumb. I see what you're saying."

The conversation stopped for a while as both men brought in fish. Then Tom spoke up again.

"Hey — I'm really getting into this thing now!"

"There may be hope for you after all," Joshua taunted.

"C'mon, tell me more about the techniques."

"Okay — well, you never crank the reel to bring in a hefty fish on ultra-light."

"Why?"

"For two reasons — first you'll end up with more line twist than you know what to do with . . . cranking against a steady weight causes line kink. But more important than that, again you're putting too much stress on the line at the bail roller."

"Well — how am I supposed to get the fish in? I cranked the last three in."

"That's because you don't know what you're doing. You shouldn't have! The next time you catch one, just let him run and fight until he gets tired. Don't rush him! Play him. And then when the fish gives up, *pump* him in gently and drop the rod tip to take in slack."

"Crank when you drop the rod tip?

"Right."

"Josh, I don't know whether to believe you or not," Tom harrased. But just then, he hooked another bluegill. "Hey, get the net, Josh — I'm fixin' to *pump in* a fish here."

"You're learning!

The two-way teasing ended again for awhile, but only because the boat had rounded a point in the shoreline and both men were fast-after some of the largest bluegills of the day and were pulling them in one after another. Tom was putting a fish in the boat just as Joshua let loose a stream of description not befitting his Biblical namesake.

"What happened, Josh? he asked.

"I lost a good fish, that's what happened — all because I'm sitting here foolin' around with you."

"You mean the teacher loused up?"

"Yea, the teacher did. I forgot to tell you that you never let a lot of line underwater — keep the tip high to take the strain off the monofilament."

"Hey, Josh —?"

"What, what?"

"When you fish with ultra-light, you got to keep the rod tip high!"

They both laughed.

Later that evening on the way back to the launch with a full stringer of bluegills, the men resumed their talk of light-tackle techniques over the drone of the outboard.

"So you can use ultra-light in saltwater too, huh?" Tom asked his fishing partner, shouting over the motor.

"Sure can," Joshua yelled back, "and with a lot more fun than on the heavy stuff, too."

"What about baits, though — you wouldn't use light lures in saltwater."

"You could . . . but you could also rig the standard saltwater artificials. Oh — and natural baits, like live cacaho minnows and shrimp, well they're perfect for ultra-light because you can cast them a pretty good distance without using added weight and get a lot more action out of the bait as part of the deal. I've caught croakers, redfish, pompano, Spanish mackerel, and lots of other saltwater fish on that rig you were using today."

"What's tackle like this usually cost?" Tom queried.

"I'd say that you can buy a good grade combination from a large department store specializing in outdoor products for somewhere in the neighborhood of $40 or $50. But you'll have good equipment."

Tom just shook his head understandingly, and for a minute or so — as Joshua jockeyed the boat into position at the launch and dropped down the idle on the outboard — the two were quiet. But then Tom broke the silence.

"Tell me, ol' buddy . . . you got time to make a stop with me on the way home?"

"Yea — where do you want to stop?" Joshua asked.

"Well, when we were heading out this morning I saw a sporting goods store back there in the shopping center."

"You mean you're gonna —?"

"Yep . . . I sure am."

There was another pause for a second. Then Tom turned back to Josh and said, "But what am I gonna tell my wife when I come home with another $50 worth of fishing tackle, huh?"

Joshua broke into laughter.

"Tell her you were fishing with Curt Gowdy!"

PROFESSOR WITHOUT PORTFOLIO

Story and Photography by McFadden Duffy

Hermann Janssen of Metairie doesn't have any degrees in fisheries biology, but he is a knowledgeable ichthyologist and can hold his own in any discussion of marine fishes with many professional biologists who hold doctorates in that field.

He has compiled 23 volumes of scientific, but comprehensible, information on marine fishes of the U.S. gulf coast, some 924 species to be exact. The works cover the piscatorial alphabet from amberjack to zebra sole. They are in manuscript form.

"Pete" Janssen would like to see this wealth of information published and make the scientific data he has assimilated available to the public, particularly marine biologists.

He is willing to turn the manuscripts over to the Department of Wildlife and Fisheries, but there are drawbacks to what seems like a logical and generous thing to do. The department isn't in the publishing business. At least it doesn't have funds to publish vast compilations of fisheries data and disseminate it broadly.

Besides, the department has its own staff of marine biologists and it is not always easy to fund publication of their technical papers and research findings.

So, Pete Janssen goes on doing his thing and the shelf of bound manuscripts in the library/den of his pleasant suburban New Orleans home continues to expand, as he now gives full time to satisfying his thirst for knowledge of marine fishes.

Just how this native New Orleanian, a Tulane University graduate and chemical engineer for almost 37 years with the Southern Regional Research Laboratory, became an expert on marine fishes is a fascinating glimpse into the private life of a man whose basic motivation is to learn more about the uncounted creatures that inhabit the sea.

Janssen's insatiable interest in saltwater fish was sparked back in the early 1930's. At that time, the Louisiana Department of Conservation, predecessor of the present Department of Wildlife and Fisheries, published a series of "bulletins" dealing with various aspects of the state's wildlife resources.

It was Bulletin No. 23 — *Fishes and Fishing in Louisiana* — that left Janssen with a thirst for knowledge of fish that will never be quenched.

It was far from the present connotation of a "bulletin." James Nelson Gowanloch, for many years chief biologist for the Department of Conservation, turned out a monumental work that is highly respected today by researchers. It was 638 pages in length and contained many fine photographs and drawings. Long out of print, the books are collector's items today.

The book on fishes fascinated Janssen. He read it over and over again. Through the years, his copy literally fell apart in his hands from use; but its contents had been committed to memory.

The young engineer, fresh out of college and destined to spend over three and a half decades engaged in activities only remotely related to fish, lost none of his early enthusiasm. Nor did he forget the style in which Gowanloch wrote.

Folks who are fortunate enough to have read Bulletin No. 23 will readily understand the pleasure of finding factual, scientific information presented in a way that is easily readable and understandable.

That's the way Janssen has written. The factual information is presented in a lively, readable style that one rarely finds in works by professional technical people. There's a chance they'll never be read by people who are intrigued as much as Janssen for knowledge about sea creatures. And that's the tragic thing about the Janssen manuscripts.

If it is Janssen's lot to spend his retirement simply doing his thing, it is not a bad lot by any standards. Pete and his wife Marjorie have a comfortable camp on the shore of Caminada Pass, within sight of the bridge linking the mainland and Grand Isle. They spend at least one week a month at the camp, and have been extending the week in September to almost the full month during the past few years. A recent switch was staying at the camp for most of May this past spring.

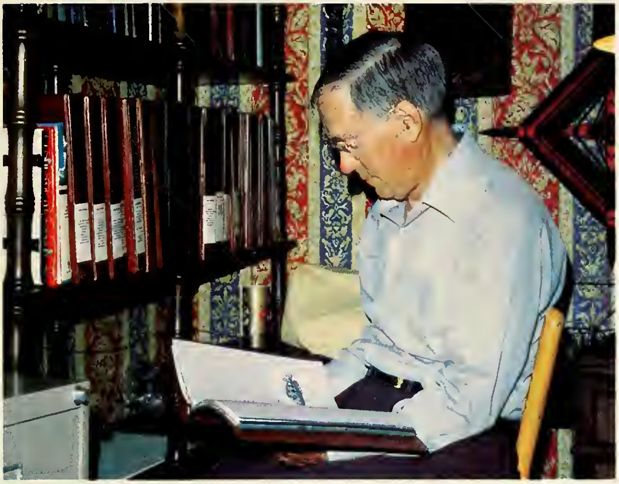
Both are enthusiastic about fishing and there are plenty of fish to be caught. They are within sight of Elmer's Island and Grand Isle is only minutes away. There's fishing from the bridge, in the surf, and also around their own pier.

Hardly a day passes without the Janssens feasting well on both blue and stone crabs caught in their own crab pots suspended in the water from their pier. The camp fare also includes flounders caught around the pier and on the rock jetties that protect their property from erosion by gulf storms and hurricanes.

Along with the flounders, there are over a dozen species of popular saltwater fish they catch regularly in season. Pete keeps a log at the camp which posts the seasonal abundance of fish by species in island waters.

That they do well with their angling is evidenced in dozens of snapshots fastened to display boards on one wall. The Janssens and their guests are shown with many types of fish, from tackle-busting bull reds to sleek Spanish mackerel and hefty bluefish taken in September when the run of blues along the Grand Isle beaches is best.

The saltwater fish tank in the broad, cool living room of the raised camp is a constant source of pleasure to the Janssens. Whatever the season, the tank contains numerous specimens from the gulf. Fish and other forms of marine life for the tank are caught by Pete and Marjorie in a fine-mesh dip net just a few steps from their back door and in a 12-foot seine in the surf.



Janssen has compiled 23 volumes of scientific information about marine fishes of the U.S. gulf coast. The manuscripts cover 924 species of fish.

Depending upon the season of the year, one can find baby pompano, jackfish, spadefish, Spanish mackerel, striped mullet, gray triggerfish, gulf oysterfish, mangrove and lane snappers, lookdown, white grunt, inshore lizardfish or transparent larval eels. Many of the small fish in the aquarium are less than an inch or so long but the markings and other characteristics of the miniature fish are often exactly the same as adults. The tank provides hours of pleasure for the couple and their visitors.

And when they are not fishing or crabbing, there's birding to be done. Spring and summer bring massive migrations of birds. They pause briefly at Grand Isle, Elmer's Island and in that general area before heading north or south as the case might be.

Pete has a powerful telescope and it comes in handy in deciding where to go fishing, as well as for birding and photography. From the porch he is able to see if people fishing on the bridge are catching fish, and exactly what kind of fish they're catching.

The telescope has attachments that mount his camera and one wall of the camp is lined with photographs of birds — closeups of birds that were photographed through the telescope. With few exceptions the photographs are of migrants that visit that part of Louisiana only briefly. Pete has characteristic pictures of them that preserve those fleeting visits.

I became acquainted with Pete Janssen shortly after the raging gill net controversy had partially subsided. He'd requested information about fisheries organizations he might join in order to talk shop with other persons involved in marine fisheries work.

When the conversation got around to speckled trout and redfish, he offered to loan me one of his works. It contained his chapters on those two species of fish.

A basic motivation to learn more about the uncounted creatures of the sea directs much of Janssen's activity during his retirement years.

In a style reminiscent of Gowanloch's, there was the information I had been seeking, the answers to a lot of questions that had formed in my mind during the heated controversy over gill nets. I hadn't been able to find this sort of information any place else.

During the debate about monofilament gill nets, a lot of misinformation about speckled trout and redfish had been passed around as gospel. Even the migratory patterns of speckled trout, their spawning habits and peak periods of spawning activities had been clouded in uncertainty by the proliferation of misinformation spread at the time.

I was grateful for the opportunity to read the speckled trout and redfish information contained in that manuscript from Janssen. It led to a friendship that is refreshing and rewarding.

There's no telling what a visit with Pete and Marjorie will turn up in the way of new and interesting information about Louisiana's marine resources.

Hundreds of specimens of marine life from the Gulf of Mexico have been caught by Pete and Marjorie Janssen in fine-mesh dip nets and with seines in the surf near Grand Isle.

One day last May while we were talking at the camp, the conversation got around to stone crabs. Janssen mentioned that he was catching a few regularly in his crab traps, along with blue crabs which they boil, stuff, fry or simply pick for succulent crab meat.

I was instantly curious and rather incredulous. My first introduction to stone crab claws had been in Havana years ago. At the National Hotel then, stone crab claws as an appetizer commanded as handsome a price as a crabmeat cocktail in a good restaurant fetches today. And that was in pre-Castro days before the dollar took a tumble.

The flesh of stone crab claws is sweet, rich and delicate, resembling meat in claws of northern lobsters. They're members of the mud-crab family (Xanthidae) and have somewhat oval shapes. The large claws have black tips. Body color grades from purplish to dark brown, or reddish brown, with brown mottlings. And they do not have those flat swimmer legs one finds on blue crabs.

They are found from North Carolina to Texas but at present are only considered commercially important in southern Florida. Nowhere are they as abundant as blue crabs.

Janssen suggested we check his crab traps. He'd baited and lowered them into the water of Caminada Pass the night before. He wasn't at all surprised when the traps yielded a mess of blue crabs and three stone crabs. He held a stone crab with a pair of tongs so I could get some photographs.

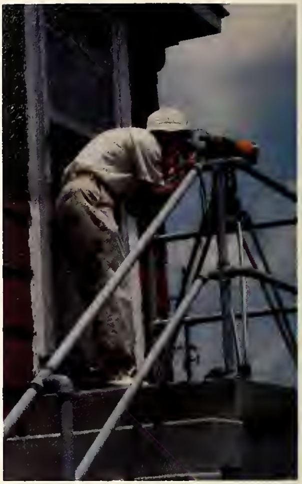
Although sluggish in habit, a stone crab can inflict a severe bite with its powerful claws. Holding them by hand, as one does with blue crabs, isn't recommended.

These crabs are burrowers, living in deep holes in mud and sandy mud, near streams flowing into estuaries, and around rock and mangrove roots.

Janssen told me the most he has taken in one setting of the crab traps is 14, with several being average during a normal period of crabbing. He thinks the rock riprap along his shoreline might be attracting them to his crabbing spot, but similar catches are being made by others having camps in that area.

The most important commercial fishing areas for stone crabs are Beaufort, North Carolina; Charleston, South Carolina; Miami, Naples, and Key West, Florida.

Janssen feels that a commercial stone crab fishery might be developed in Louisiana, supplemental to blue crab fishing. He thinks that research along that line might indicate where crab fishermen might take more of the highly prized stone crabs.



A powerful telescope can be a valuable aid in observing and photographing migratory birds or simply learning if fishermen on the Caminada Pass bridge are having any luck.

It would be great if Louisiana crab fishermen along the gulf could market stone crabs as a sideline to regular crabbing operations. It wouldn't be a big business but the extra income would help, just as development of the Louisiana clam industry is helping.

Depending upon the season of the year, one can find a wide variety of marine fish in the saltwater tank at the Janssen cottage on Caminada Pass near Grand Isle.

Stone crabs, highly prized by Florida's commercial crabbers, are caught with regularity by the Janssens from Caminada Pass waters.

A few days after my visit with the Janssens I had occasion to talk with Dale Beaumariage, chief of the Bureau of Marine Science and Technology, Division of Marine Resources, Florida Department of Natural Resources. He told me current dockside price of stone crab claws was $1.65 a pound (7 or 8 claws) and that the larger claws brought $2.25 a pound (3 to 5 claws). The heavy shells are included in the weight.

Florida is promoting the stone crab fishery but the promotional efforts have brought demand greater than the supply. State law in Florida permits taking of only one claw from a stone crab. It must be a minimum of 2-3/4 inches. The crab is returned alive to the water and will regenerate a new claw in time. This practice by Florida fishermen serves to perpetuate that fishery.

His interest in stone crabs and his observation that perhaps Louisiana should investigate the possibility of developing this supplemental fishery is cited only to show the latent benefits that might come about if the vast information that has been collected by Janssen could be disseminated in some way.

His total interest in marine fishes is by no means restricted to collection of different species, species research, and observation of the ever-changing assortment of young gulf fishes in the saltwater tank at the camp, which really isn't a camp in the true sense of the word. It's a raised cottage.

Janssen is vitally interested in the work of the U.S. Gulf of Mexico Management Council. The gulf council is an offshoot of the national structure which ultimately will have awesome, almost total authority over management of all marine resources found in gulf and ocean waters within 200 miles of shore.

What most persons believed was only national legislation to prevent encroachment of foreign fishing vessels in United States waters and over-fishing of commercial species has spawned what in time may prove to be the biggest fisheries bureau ever created at a federal and international level.

Many knowledgeable persons today believe that in a matter of time all commercial and sport fishing in saltwater will be regulated by the respective coastal councils, or their Washington parent. The gamut of marine fishes to be regulated will range from shrimp to billfish, and many if not all forms of shellfish.

Just recently, Janssen attended the New Orleans public hearing seeking comment on a draft fishery management plan for reef fishes (snapper and grouper), proposed by the gulf management council. He was there as an observer.

Similar programs are being formulated and implemented by the council for king and Spanish mackerel, billfish, sharks, stone crabs and shrimp (in Florida). Others are being drafted.

The eventual impact on Louisiana's fisheries is just a matter of time, in Janssen's opinion.

Unlike many respected fisheries biologists I've known, Pete Janssen is an enthusiastic angler, as is his wife Marjorie. When they are not collecting species for the fish tank, netting dragon flies, shelling, beachcombing, birding/or taking photographs, they are either tending their crab traps or fishing.

His most memorable fish landed in water near the camp were a lane snapper and a small rock sea bass. The scarlet eyes and the rosy-red, yellow-striped body of the snapper took him by surprise. The rock sea bass was also completely unexpected. Both were caught from the bridge leading to Grand Isle.

So there you have Pete Janssen. If you want to get down to basics, he's a selfmade ichthyologist to be sure; but this is not the classic example of the man who pulled himself up by his bootstraps. Janssen has already obtained his position in life, with a highly respectable career behind him, accompanied by the amenities that go with that position in life.

Today he is vigorous in his pursuit of information about creatures of the sea, and he has accumulated a vast storehouse of information that, ironically, is available but not available to people who want it and need it. This is a strange prank of fate. He's a professor without portfolio.

A female stone crab in berry taken at Caminada Pass supports Janssen's belief these crabs may someday be taken in commercial numbers from Louisiana waters.

OUTDOORS AT THE MOVIES

By Clany Soileau

Cinematographers with the department's information section have been busy over the past few years. They've tramped through north Louisiana woodlands, splashed about on Todedo Bend and off Grand Isle, and filmed the night capture of an alligator in the coastal marsh. If you're interested in hunting and fishing, fish and game management, or just concerned about the status of some of Louisiana's non-game species you'll be interested in one of the six films produced, written, and edited by the information section's film program.

The most recent film to be completed is *The Alligator, the Marsh, and Man*. Filmed at various locations along Louisiana's coastal marsh, the film tries to explain the relationship between the alligator, marsh ecology, and man's role in the future of this primitive reptile.

The information section is currently finishing a film which gives a broad survey of some of the hunting and fishing opportunities in Louisiana. It should be available to the public this summer. It has sections on dove, duck, deer, and rabbit hunting and saltwater and freshwater fishing.

Louisiana Whitetail: A Hunting Heritage has been available for public showing for some time and has proven to be immensely popular. The film gives a broad overview of the department's deer management program, including a survey of deer reproductive biology, habitat needs, and a history of the restocking programs carried out over the past 25 years. The film is of great interest to the deer hunter because it explains why there are so many deer available for the outdoorsman.

Fisherman will be particularly interested in two films which are in the department's film library. *The Payoff is the Catch: Freshwater Fishing in Louisiana* is a survey not only of all the wonderful fishing opportunities in the Bayou State but also of the many highly successful fish managment programs being carried out by the Department of Wildlife and Fisheries. *The Striped Bass: From Research to Reality* is the story of how biologists have restocked this marvelous fish in Louisiana waters. Fishermen are currently taking 20 to 25 pound striped bass, fish that were stocked in the early years of the program and have now grown up.

Brown Pelican: Bird in Danger, the first film produced by the information section's film program, details the department's efforts to reestablish the state bird. The film shows pelicans being captured in Florida and transported back to Louisiana, pelican nesting sites, and the research that went into learning why the birds have faced such a desperate struggle for survival.

For information on these films, write Film Librarian, Louisiana Department of Wildlife and Fisheries, P.O. Box 44095, Capitol Station, Baton Rouge 70804. A catalog listing all films the department has for public showing is available upon request.

WILD PETS

AND RABIES

By David E. John and Charles J. Issel, D.V.M.

Photography by Lloyd Poissenot

In 1977 an Oklahoma shop foreman took home a baby skunk that two of his workers captured in the woods. Since it was still small, the foreman's wife fed the skunk with an eyedropper and often put her fingers into its mouth to keep it from choking. In moments of play, the couple allowed the animal to crawl over their four month old son. When word got out that a skunk was in the neighborhood, six children came over to play with it. The skunk crawled over all of them and lightly bit one girl on the hand.

Days later the skunk died. The shop foreman sensed something wrong and had it checked for rabies. The result was positive — the skunk had the disease.

In an unrelated incident, a two-year-old descented, vaccinated pet skunk bit a man and exposed two children before it was killed and taken to a lab. The animal was also positive for rabies.

As a result of these exposures to skunks, the 15 persons involved had to undergo a total of 360 injections at a cost of $7,500, not to mention the time lost and discomfort involved. Happily all survived; but was the pleasure of owning a wild pet worth it?

WILD PETS

Wild animals are just that — *wild*. They are not domesticated and they do not make good pets in the same sense that dogs and cats do. Outwardly, the young are as cute and fetching as any baby animal. They are curiosities that capture the attention of everyone; they are like people-magnets, making young and old alike want to smile, to chatter, and to cuddle. Inwardly, though, wild pets are still untamed with all the same wild instincts, urges, and shortcomings as their free relatives in the field.

In spite of these problems, wild animals have become so popular that it is possible to buy nearly any kind from anteaters to zebras. You can buy burros, bears, buffalos, chipmunks, cougars, foxes, llamas, monkeys, porcupines, raccoons, skunks, and wallabies. Trade in the more expensive exotic animals is limited, but the skunk and raccoon business is thriving. The market for them is good enough to keep many operators in business, both legally and illegally. Not only is the trade active, but any baby animal captured in the wild is likely to end up in someone's home as a pet. People have snatched up "orphan" skunks and raccoons from the woods and have quickly given them away or sold them as novelty items for high prices. As the Oklahoma shop foremen learned, his free skunk carried a high price indeed.

THE MAIN PROBLEM

Wild animal pets cause a profusion of problems depending on what kind you happen to have. Previously tame deer may attack without warning as they mature. Monkeys will bite and have even killed small children. Skunks like to nip fingers. Raccoons get into everything unless you chain them. Wild pets are unpredictable, sometimes biting and attacking for no apparent reason. Even if you can live with their uncertain personalities, the threat of rabies, especially with foxes, skunks, and raccoons, overshadows all other concerns.

A skunk owner might argue indignantly, "If I take my pet to a veterinarian for all the proper shots, why should rabies even be a consideration?" The answer to this question is as simple as it is surprising — *THERE IS NO LICENSED RABIES VACCINE FOR WILDLIFE!* What protects dogs and cats does not necessarily protect wild animals. Vaccines that immune domestic animals may even prolong or mask existing rabies infections in wild animals. In fact, live virus rabies vaccines, developed and proven to protect domestic animals for as long as three years, have actually *caused* rabies in wild pets — for this reason, such vaccines must never be used in wildlife.

DOMESTIC AND WILD ANIMAL RABIES

The progress of rabies and its clinical signs in domestic animals is fairly predictable. Should a dog encounter a rabid fox, the virus in the fox's saliva will enter the dog's body at the location of any bite wound. The virus multiplies, penetrates a nerve cell, and slowly moves up the nerve at no more than 3mm per hour to the spinal cord and then to the brain. From the brain, the virus moves to the salivary glands. At this point tthe dog becomes dangerous — if he bites now he can transmit the disease by his infected saliva. Normal time for the virus to move from the bite would to the salivary glands is 15-25 days after exposure. Indications of rabies in the dog include one or more of the following behavior and physical changes: restlessness, aggressiveness, lethargy, change in vocal quality, persistent howling, paralyzed lower jaw, convulsions, profuse ropy saliva, and paralysis. Dogs usually die in ten days or less after the virus reaches the salivary glands. *THAT IS THE REASON FOR WATCHING DOGS CLOSELY AFTER THEY BITE SOMEONE*. If the dog shows no symptoms and survives 10 days after the biting incident, it does not have the disease. The 10-day waiting period is very reliable in dogs . . . but not in wildlife.

Rabies in wild animals is considerably less predictable. An infected animal can undergo a variable incubation period where the virus remains long dormant in the wound. Furthermore, when the animal does become infective, it may not show any symptoms of the disease while still releasing great amounts of virus. A skunk, for example, can shed the virus in its saliva without showing any signs of illness for months. No 10-day waiting period here. By the time the animal becomes ill, the person who has been bitten could be beyond help.

About the Authors:

Mr. John is a wildlife biologist for Louisiana Department of Wildlife and Fisheries in New Orleans, Louisiana.

Dr. Issel is an Associate Professor of Veterinary Virology and Veterinary Science at Louisiana State University in Baton Rouge, Louisiana.

A special thanks to Dr. Charles T. Caraway, Louisiana State Epidemiologist and Public Health Veterinarian in New Orleans, Louisiana who kindly allowed access to his rabies files.

Wildlife may show some or none of the signs of rabies until the final stages. In general, a wild animal which shows aggressiveness or an unusual lack of fear is suspect. Raccoons in particular are dangerous because they are less likely to display furious behavior — but this is not a consistent finding either. The only constant among the signs of rabies are the inconsistencies. As in domestic animals and man, death is the usual end result of the disease in all wildlife species except bats, which may survive to become lifelong carriers.

DISTRIBUTION

Rabies is a worldwide infection primarily affecting dogs, cats, and other carnivores, but man and all warm-blooded animals are susceptible. Canada's three main reservoirs of rabies are foxes, skunks, and bats. In Mexico, where pet vaccination requirements and leash laws are lax or nonexistent, most of the reported rabies cases occur in dogs, cattle, and cats. From Mexico through Uruguay, vampire bats comprise a huge reservoir of rabies. They infect and kill from 0.5-1 million cattle a year at a cost to ranchers of $250 million annually.

Most cases of rabies in man and domestic animals in the United States today originate from contact with an infected wildlife host — mostly skunks, bats, raccoons, and foxes. Fox rabies was once a serious problem in this country, but fox hunting and trapping, as well as habitat reduction, have probably contributed to the appreciable reduction of fox rabies cases. Figures 1-4 show that rabies seems to be more associated with particular species in certain parts of the country.

Skunks are the most important wildlife reservoir in north central and south central United States and in California. Surveys have indicated that up to 15 percent of all wild skunks are rabid — that is about one in seven.

Raccoons are the most important rabies host in the southeast. Of the total U.S. reported raccoon cases in 1977, 87 percent of them were from Georgia and Florida.

Foxes are important rabies carriers in south central U.S. and the Applachian region. Rabies is known in the majority of insectivorous bat species. In 1977, California reported 26 percent of the total U.S. bat cases.

There are no particular hotspots in Louisiana at present. In the past, fox rabies epidemics have flared up . . . but now the major wildlife hosts in order of importance in the state are skunks, bats, coyotes, and foxes. Table 1 gives a breakdown by animal species of the reported cases of rabies in Louisiana for the past 15 years.

SUSCEPTIBILITY

Species susceptibility to rabies is variable with foxes the most susceptible, skunks, cats, raccoons, and bats next in line, then cattle man, horses, and dogs and finally oppossums which are quite resistant. Because rodents such as rats, mice, squirrels, chipmunks, hamsters, gerbils, and guinea pigs only rarely acquire rabies under natural conditions, post-exposure treatment for their bites is seldom justified. Of the more than 13,000 rodents and rabbits checked in 1977, only one North Dakota woodchuck was positive. In addition, no human rabies cases have ever been attributed to a rodent bite. Table 2 gives a breakdown of the reported U.S. rabies cases since 1953.

TRANSMISSION

Rabies virus is most often transmitted when the virus in the saliva enters a bite wound. The closer the bite, scratch, or abrasion is to he face, the more severe the wound, the quicker the virus will attack the brain. Infected foxes, dogs, and skunks pose a greater threat for bite transmission because they generally have a greater concentration of virus in their saliva than other species.

Another means of transmission is by inhaling the virus. The air in bat caves can be as infective and deadly as the rabies aerosals produced in laboratories; however, the risk of acquiring the infection under these conditions is very much lower than that following a bite exposure. Other unlikely, but possible, modes of transmission include an animal eating a dead or dying rabid animal, and a sick mother infecting her entire litter by her milk, or by licking them.

CONTROL

To reduce the threat of rabies in man at least four control measures are possible. The first and most important is the vaccination of domestic dogs and the control of stray dogs and cats. Investigators have estimated that a 70 percent vaccination rate of dogs is sufficient to control urban rabies. In Laredo, Texas, 54 dogs were reported rabid from November 1977 to March 1978. Health officials halted the disease by initiating a massive vaccination program (13,000 dogs, 1,000 cats) and by capturing over 1,700 strays. To date, officials still do not know what started the Laredo epidemic, but they do know that vaccination and roundup of strays stopped it before any human rabies cases occurred.

A second control measure is to reduce contact between infected wildlife hosts and man or his animals. This is difficult when recreational activiites bring campers, hikers, hunters, and other outdoorsmen in to wild habitats, thereby increasing their chances for

Table I. REPORTED RABIES CASES IN LOUISIANA BY TYPE OF ANIMAL 1963 - 1977

YEAR	DOGS	CATS	CATTLE	SKUNKS	COYOTES	FOXES	BATS	OTHER ANIMALS	TOTAL
1963	9		3			41	1		54
1964	14	1	2	1		68	1		87
1965	21	1	1	2		59	5	1 Wolf	90
1966	8		4	12		31	4	1 Squirrel	58
1987	11	4		5		34	16		70
1968	11	1		7		23	2	1 Pig	42
1969	4	1		4	1	28	4		42
1970	9		1		2	51	5	1 Bobcat	88
1971	11			8	2	42	1		62
1972	7			14		18	10		49
1973	10		1	17		20	3	1 Raccoon	52
1974	5			8	4	4	4		25
1975	1			2	1		4		8
1978				4			3	1 Horse	8
1977	1			16			5		22

TABLE 1 REPORTED RABIES CASES IN THE UNITED STATES[a], BY TYPE OF ANIMAL 1953 – 1977[b]

YEAR	DOGS	CATS	FARM ANIMALS	FOXES	SKUNKS	BATS	OTHER ANIMALS	MAN	TOTAL
1953	5,688	538	1,118	1,033	319	8	119	14	8,837
1954	4,083	462	1,032	1,028	547	4	118	8	7,282
1955	2,657	343	924	1,223	580	14	88	5	5,844
1956	2,592	371	794	1,281	631	41	126	10	5,846
1957	1,758	382	714	1,021	775	31	115	6	4,802
1958	1,643	353	737	845	1,005	68	157	6	4,814
1959	1,119	292	751	920	789	80	126	6	4,083
1960	697	277	645	915	725	88	108	2	3,457
1961	594	217	482	614	1,254	186	120	3	3,470
1962	565	232	614	594	1,449	157	114	2	3,727
1963	573	217	531	622	1,462	303	224	1	3,933
1964	409	220	594	1,061	1,909	352	238	1	4,784
1965	412	289	625	1,038	1,582	484	153	1	4,584
1966	412	252	587	864	1,522	377	183	1	4,198
1967	412	293	691	979	1,568	414	250	2	4,609
1968	296	157	457	801	1,400	291	210	1	3,613
1969	256	165	428	888	1,156	321	307	1	3,522
1970	185	135	399	771	1,235	296	252	3[c]	3,276
1971	235	222	484	677	2,018	465	289	2	4,392
1972	232	184	547	645	2,095	504	218	2	4,427
1973	180	139	448	477	1,851	432	170	1	3,698
1974	232	121	303	302	1,421	537	239	0	3,155
1975	129	104	200	276	1,226	514	223	3	2,675
1976	116	106	198	187	1,468	737	332	2	3,146
1977	120	108	217	122	1,631	637	346	1[d]	3,182

[a] Includes Guam, Puerto Rico, and Virgin Islands

[b] Data prior to 1960 from USDA, ARS. Subsequent data from PHS, CDC.

[c] 1 patient recovered

[d] Patient recovered with sequelae

rabies exposure. Common sense, knowledge of the disease, and strictly enforced leash laws to prevent pets from running loose will all help to minimize wildlife contacts.

Third, considering the different rabies hotspots in the country, and reduction in movement of susceptible wild animals from those areas is in the best interest of public health. Also, because there is presently no safe, sure way to immunize wildlife, the states should enact and enforce laws to prohibit wild animal ownership and to prevent their interstate trade.

Fourth, as wild animals are the source of most cases of rabies in domestic animals and man in the U.S. today, it seems logical to attack the source of infection — logical but not yet practical. A number of states have tried, most without success, to reduce infected wild populations by shooting, poisoning, or gassing. In Mexico, a special anti-bat campaign using anticoagulants has greatly reduced the cases of rabies in cattle. Many times, though, an innocent species ends up the loser. The black-footed ferret, for example, was nearly exterminated in parts of the United States because of poison bait set out for other animals.

A new procedure expected to reduce or even eliminate rabies involves placing bait laced with vaccine in areas where target species (foxes, skunks, raccoons) will eat it. The method needs more safety testing, especially with non-target species, but if it is successful wild animals would in effect vaccinate themselves.

TREATMENT

Louis Pasteur developed the first anti-rabies vaccine in the 1880's. His regimen is the basis for our modern day treatment of the disease. Basically, a person bitten by a rabid animal takes two types of innoculations. First he receives Rabies Immune Globulin (RIG) — half infiltrated around the wound and half administered intramuscularly in the buttocks — in an attempt to destroy the virus directly. RIG is a passive immunizing agent prepared from the blood of hyperimmunized donors. Then the person receives from 14 to 21 daily injections of Duck Embryo Vaccine (DEV) plus two boosters to stimulate his own bodily production of antibodies against the disease (active immunity). The physician gives the vaccine doses subcutaneously (under the skin) in the abdominal region, lower back, or side of the thighs. The reason for using those locations instead of the shoulder area is to lessen the impact of soreness, swelling, and itching which often occur. Other possible side effects from DEV are redness, headache, asthma, fever, and nausea.

A recently developed vaccine, called Human Diploid Cell Strain (HDCS), promises to be a major advance in human rabies treatment. HDCS requires only six injections to stimulate a higher antibody response with less adverse side effect than DEV. The Food and Drug Administration will probably license the new vaccine for use in the United States later in 1979.

Pasteur once figured that no more than 16 percent of the people exposed to a known rabid animal would get the disease. Twenty seven years ago in Iran, however, 15 of 32 persons (47 percent) bitten by a rabid wolf died. Either way, the odds are not good. Some 30,000 people in the United States each year who do not wish to chance the odds undergo post-exposure rabies treatments at a cost of about $500 per person. In many of these cases however, treatments follow exposures which could *not* have resulted in the disease. The Center for Disease Control (CDC) in Atlanta, Georgia, has long suspected that as many as 25,000 vaccinations each year may be unnecessary. As a result, years ago CDC set up a consultative service for private physicians and health departments regarding recommended post-exposure treatment. CDC suggests that physicians consider the following criteria before prescribing specific anti-rabies treatments: species of biting animal, provoked or unprovoked bite, severity of exposure, vaccination status of the animal, and presence of rabies in the region.

Persons in high risk categories such as animal handlers, wildlife biologists, veterinarians, and their assistants often elect to be immunized for rabies as a precaution. Three weekly injections of DEV in the shoulder, plus a booster later on, usually stimulate detectable antibodies. After a known rabies exposure, the vaccinated person still receives at least five additional shots.

Wild animals can be carriers of rabies and should not be kept as pets.

Rabies in the United States is most common in skunks, bats, raccoons, and foxes.

Fig. 1 COUNTIES REPORTING SKUNK RABIES, 1977

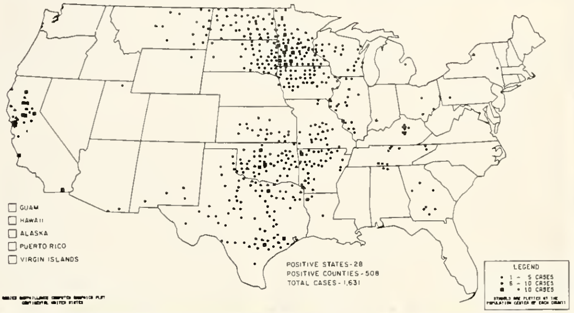


Fig. 2 COUNTIES REPORTING RACCOON RABIES, 1977

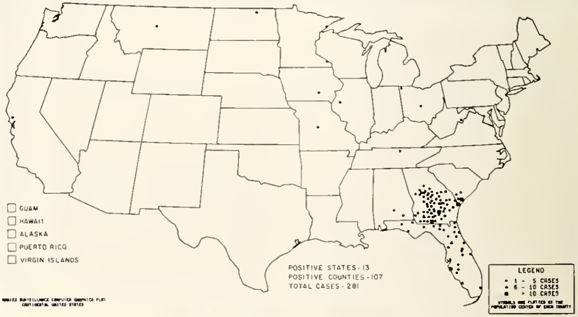
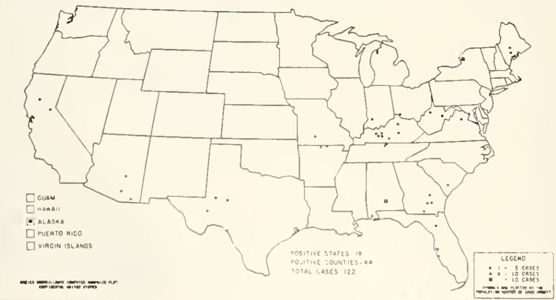
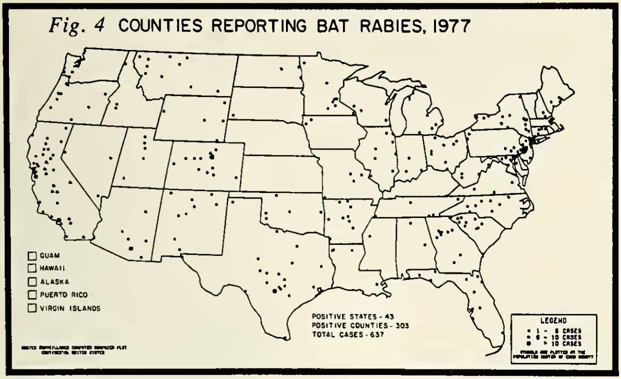


Fig. 3 COUNTIES REPORTING FOX RABIES, 1977



Source for figures and tables:
Center for Disease Control
Rabies Surveillance Annual Summary
1977—Issued September 1978

Fig. 4 COUNTIES REPORTING BAT RABIES, 1977



There is no licensed rabies vaccine for wildlife — vaccines that protect dogs and cats may actually cause rabies in wild pets.

WHEN YOU ARE BITTEN

When an animal bites you, the first thing to do is capture it and put it in a safe place. Then scrub out the wound with soap and warm water for a minimum of 20 minutes. This is important in preventing establishment of the virus. Contact your local public health authorities and tell them of the incident. Your treatment will depend on the circumstances involved. Generally bites and scratches from wild animals, stray dogs or cats, or from unvaccinated domestic animals in a known rabies area should be followed by having the authorities sacrifice the animal and examine the brain for rabies virus. Bites from healthy domestic pets (whether vaccinated or not) in a region where there is no known rabies, should be followed by quarantining and observing the biter for 10 days. If the animal dies, or shows signs of rabies within that time and is sacrificed, the brain is sent to the lab for examination. Positive results indicate the innoculation series should begin at once.

LEGISLATION

Since wild animals constitute the most important source of rabies infection in this contry, and since there is presently an active trade in the major offenders, it follows that any effort to remove the susceptible animals from trade would reduce the chances of exposure to man and his domestic animals.

Some localities in California and Virginia have passed regulations strictly forbidding the possession or sale of specified wild pets. Other states have laws, but need better ones. Louisiana Act 601 (approved in 1974) states in part that no person shall purchase, sell, or donate any skunk, fox, raccoon, wolf, bobcat, or any other species of wild animal capable of transmitting rabies in Louisiana without the specific approval of the State Health Officer. Even then, the prospective wild pet owner needs a receipt from a licensed game breeder for his animal, or a permit from the Louisiana Department of Wildlife and Fisheries. Partly because of the public's attitude and general opposition to controlling private enterprise, enforcement has been difficult in many states.

So Louisiana has been fortunate. Aside from fox outbreaks in the sixties and early seventies, the state has only been on the fringe of an apparently larger rabies problem in our neighboring states. But keeping in mind Laredo, Texas, which had not seen rabies for 29 years before its epidemic, Louisiana residents must not become complacent. The rabies reservoir in wildlife is real; it is an ever present menace that all responsible people must consider before choosing a pet. The wrong choice could lead to unnecessary exposure to a fatal disease. It is better for all concerned to let wild animals stay that way — wild and free.

GRASS SHRIMP

By Dr. Jay V. Huner

They're small shrimp, seldom reaching two inches in length. They are abundant, found all over the state from freshwater lakes and bayous in the Shreveport area to protected saltwater bays in the Chandeleur Islands. They are almost invisible, yet they rate high as one of the best natural baits for sport fishermen. They are tiny as shrimp go, but they are not cheap. A cup of them may sell for a dollar or more. They're grass shrimp.

You may hear some folks call them glass shrimp. It is not a mispronunciation or a misnomer. They are almost transparent and that's another name for them.

There are five species of grass shrimp in Louisiana (genus *Palaemonetes*) and they are members of the larger crustacean order Decapoda (crustaceans with ten legs) along with marine shrimp, crabs, lobsters, and crawfish.

Although they are very small they are members of the same family (*Palaemonidae*) as the larger Louisiana river shrimp.

An important factor in their wide distribution in Louisiana is that the coastal estuarine area is very dynamic with salinities changing in any given area with the seasons. An area may be almost fresh in spring but very salty in early fall. Thus, it is not at all unusual to catch several species at the same place but at different times of year.

This should not come as a surprise to fishermen who catch largemouth bass and speckled trout in the same area in different seasons. In fact, where fresh and saltwater actually mix, the two species can often be caught on alternate casts.

Grass shrimp make excellent bait. Freshwater species that can be taken readily with these nearly invisible but highly tempting shrimp include bream, crappie, largemouth bass, striped bass and catfish. The diminutive shrimp also work well as bait for estuarine species like drum, redfish, speckled trout, croakers, sheepshead, and flounders.

Female grass shrimp, in berry, are especially good baits. For panfish, an angler will normally thread a single shrimp on a small hook (Number 6, 8, or 10). For bass, catfish, and the saltwater species, several grass shrimp should be threaded onto a hook.

Some anglers, in using grass shrimp for bait, will carefully pass a slender hook from side to side across the tail section; leaving the body free and, presumably, more enticing to a passing fish. A single grass shrimp on each hook of a shad rig can be especially productive in fishing estuarine areas. A fisherman lucky enough to have a large number of grass shrimp, will find they make excellent chum to stir up angling action.

These small shrimp are excellent fish food. Researchers in Missouri have found that stocking *Palaemonetes kadiakensis* in farm ponds resulted in dramatic improvement in fish production, especially bluegills. In ponds without grass shrimp, bluegills gained 0.9 ounces in five months, but in ponds with shrimp, they gained 2 ounces in the same period.

Normally, ponds that have been stocked with grass shrimp never have to be restocked.

Standard method of catching grass shrimp is to "rake" a long handled dip net with a small mesh bag (⅛ inch or less) through dense growths of aquatic weeds, or floating vegetation, or dip around exposed willow roots.

Some fishermen will make a net bag out of aluminum window screen and attach it to a dip net frame. These homemade grass shrimp nets can be especially effective in catching the small shrimp. Where vegetation is not too dense, seines may also be used to catch grass shrimp.

One enterprising individual in South Carolina is reported to have hung a dip net over the bow of his boat and caught large numbers of grass shrimp by driving back and forth over grass beds at high tide.

Anglers are usually pleased to learn that grass shrimp can be stored temporarily before fishing trips, or frozen for future use. They can also be preserved in a 5% solution of formaldehyde.

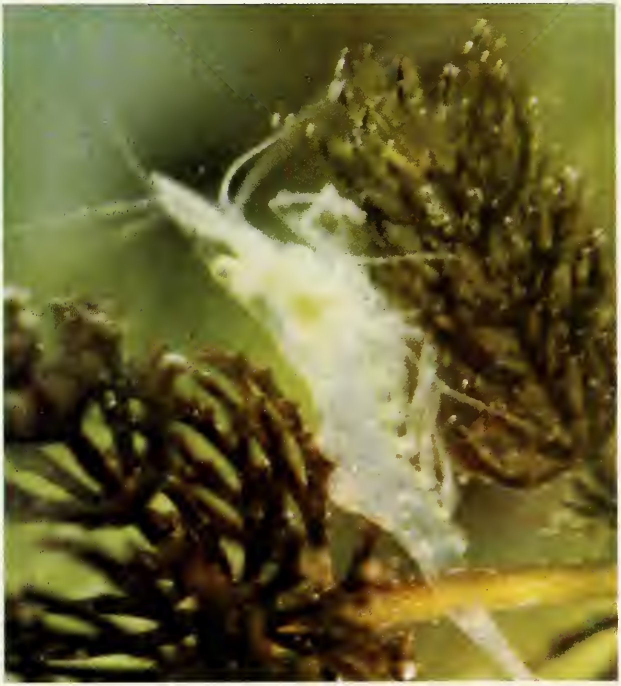
Grass shrimp may be treated like live marine shrimp or bait minnows for temporary storage. They will live for several days in a minnow bucket as long as they are not overcrowded.

A space saving way to store them for several days is to put them in alternating layers of damp sawdust (or coarse corn meal) in a cigar box or similar container. The container is then refrigerated or held on ice in a chest. Grass shrimp will live for about two days when stored in this manner.

Grass shrimp should be frozen in water in a container. Milk cartons will do nicely for this type of frozen storage. The water prevents freezer burn and also helps keep the shrimp fresh. They are firm when thawed for bait.

In the coastal area it is not unusual to catch young river shrimp and small marine shrimp along with grass shrimp. River shrimp are similar to grass shrimp in appearance but differ clearly from marine shrimp upon close examination.

Both river and grass shrimp are more robust than marine shrimp. Their tail segments are more or less cylindrical, while those of marine shrimp are higher than wide. The first



Lloyd Poissenot

A female grass shrimp, its green eggs visible through its transparent body, clings lightly to a sprig of aquatic weed (left). It's not difficult to see why some persons call grass shrimp "glass" shrimp (right).

two pairs of legs of marine shrimp end in pincers (claws). The first three pairs of legs of marine shrimp end in pincers.

Grass shrimp seldom exceed 1¾ inches in length. Females begin to lay eggs at slightly less than 1 inch in length. River shrimp rarely lay eggs before reaching 2 to 2¼ inches in length. The eggs of both river and grass shrimp are held under the tail attached to abdominal appendages called swimmerets until they hatch. Those female shrimp are said to be in berry.

Marine shrimp, however, simply release their eggs into the water around them. It follows that any basically transparent shrimp with attached eggs has to be either a river shrimp or a grass shrimp. And, any shrimp less than two inches in length with attached eggs is almost certainly a grass shrimp.

Grass shrimp eggs are green when layed while those of river shrimp are yellow/brown. In addition to the egg coloration, scientists also look for a projection, called a palp, on the mandibles, or jaws, of the river shrimp to distinguish it from grass shrimp. This requires microscopic examination; however, close study of a series of like-size grass and river shrimp will reveal that the spine, or rostrum, on the head of river shrimp has a high curved crest that is leaf-like in appearance. The crest is largely absent from the grass shrimp and the spine is more blade-like.

McFadden Duffy

Grass shrimp seldom exceed 1¾ inches in length, but they make excellent bait for fishermen.

Grass shrimp species are identified on the basis of appearance of body parts, most notably the spines projecting from the side of cephalothorax ("head"), number of serrations (teeth) on the spine, and the appearance of the second abdominal appendages of males. This calls for very close examination by specialists.

In general, grass shrimp taken more than 30 miles inland from the coast will be *Palaemonetes kadiakensis*. Those found in marshes along the coast proper where salinities are brackish (5-15 parts per thousand—full strength sea water has a salinity of about 36 parts per thousand) will be, most likely, *Palaemonetes pugio*. They are the most common species found in Lake Pontchartrain.

Grass shrimp from very salty waters around the Chandeleur Islands, Last Island, and the Cameron jetties will most certainly be *Palaemontes vulgaris*.

Palaemonetes paludosus and *Palaemonetes intermedius* can be found all along the coast. *Palaemonetes paludosus* is found in areas of low salinity (to 5 parts per thousand) and freshwater areas. It is extremely abundant in the vicinity of Atchafalaya Bay. It has not beet reported, however, any farther north than U.S. Highway 190 and some biologists feel that it is an introduced species brought into the state from the East Coast. Competition from *Palaemonetes kadiakensis* apparently limits it to the coastal regions of our state.

Palaemonetes intermedius is more at home in intermediate salinities (5-15 parts per thousand). They are so much like *Palaemonetes pugio* that one group of biologists actually believes they are really only *Palaemonetes pugio* that have developed in high salinity (15 parts per thousand or higher) waters.

All grass shrimp become mature at slightly less than an inch in length, with males generally smaller than females. Maximum size for all Louisiana species is about 2 inches, but they seldom exceed 1¾ inches.

There are several ways to determine if a grass shrimp is a female. These include the presence of eggs in the brood pouch underneath the tail; the presence of a brood pouch but without eggs; and/or the presence of developing eggs in the head (these are easily seen because of the transparent nature of the body).

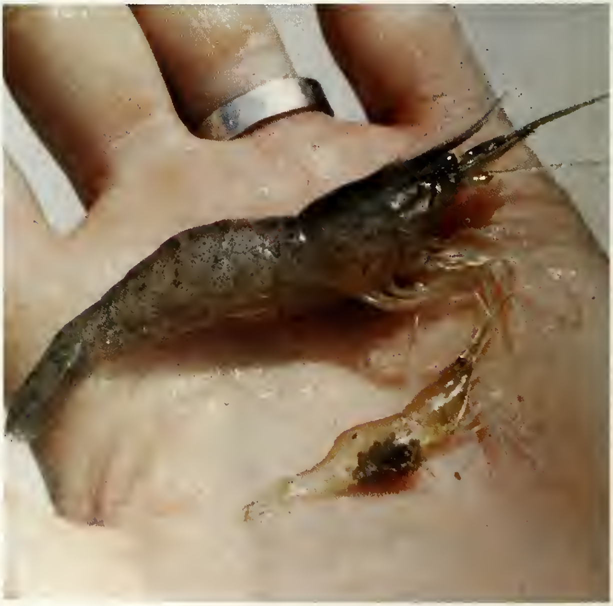
Sexing males and nonbreeding females is another matter entirely. It is very difficult without a good dissecting microscope.

The breeding season for grass shrimp generally begins when water temperatures rise above 60°F. This usually occurs in late February in coastal waters and in late March in northern Louisiana. Spawning continues into November.

It is generally accepted that grass shrimp only live one year and that a female may spawn more than once. The older, larger females generally spawn first in the spring, with younger, smaller females spawning later in the year when they reach maturity.

The actual number of eggs and size of eggs depends on the species, and the size of the female at spawning time. The brackish/saltwater grass shrimp have smaller eggs and more eggs than species in freshwater, approximately 100 to 400 eggs versus 20 to 150 eggs.

There are distinct color changes as the eggs develop in the ovary. Initially, they are grayish and translucent. As they develop, they enlarge and become yellowish, later



Lloyd Poissenot

An adult female grass shrimp with eggs visible within its body is dwarfed by relatively small river shrimp.

turning to a light green. Just before laying, the eggs are dark green. After they are laid, eggs gradually change color from green to a grayish hue. Just before they hatch, one can see the eyes of the embryos through the transparent egg shells.

The eggs hatch in 18 days or less at about 75°F and the zoeae larvae resemble grotesque, incomplete adults. They live in the plankton community and molt every two or three days; the number of larval stages depending on the species as well as the size and number of eggs.

A small jar of preserved grass shrimp sells for $1. Anglers can catch their own supply of bait in many bodies of water using a fine-mesh scoop net.

Regardless of the number of larval stages, all grass shrimp have adult body forms when they reach a size of about a quarter-inch. Then they settle to the bottom, seeking out suitable vegetated areas in which to live.

In Louisiana, they reach adult size in from two to four months depending on water temperatures.

In suitable environments, grass shrimp can reach densities of from 1/2 million to 2½ million adults per water acre. Biomass, or wet weight, of grass shrimp may range from 100 to 500 pounds per acre.

The common name for these shrimp is the key to where they may be found. Preferred habitat is submerged vegetation such as eel grass and widgeon grass along the coast, and coontail and pond weed in freshwater areas. They're commonly found in grass beds but can be located near any mats of floating vegetation and around tree and plant roots extending into the water.

Although it is doubtful that anyone cultures grass shrimp, it could be done in any small pond containing suitable vegetation and few, if any, fish. Stocking would have to be heavy, initially, because of limited survival rate of young shrimp and the relatively low egg production of freshwater species (100 eggs per female).

Introduction of grass shrimp to new farm ponds is not difficult as long as some protective cover in the form of aquatic vegetation, brush piles, or tree roots is available. Care must be exercised to prevent aquatic vegetation from taking over because you want some protection for the shrimp but not so much that the fish can't catch them. Your local LDWF fisheries biologist can help you manage your pond.

An interesting project for school children would be to grow grass shrimp in their homes or schoolrooms. Several jars (quarts of gallons), brine shrimp eggs (obtainable from pet stores), dechlorinated tap water or water from the collection site, several eye droppers, and a magnifying glass make up the necessary gear. It's interesting, as well as fun.

A female in berry should be placed in a jar of water and can be observed until the eggs hatch. When the eggs hatch the female should be removed. Zoeae larvae can be placed in small containers, or left in the spawning chamber. The zoeae will swim near the surface and are attracted to lights at night. Any good quality tropical fish food can be used but freshly hatched brine shrimp larvae are best. Instructions for hatching brine shrimp eggs are included when they are purchased at pet shops.

Lloyd Poissenot

Growing grass shrimp in jars can be an interesting project for school children and can be easily done at home or in the classroom.

McFadden Duffy

During much of the year, grass shrimp make excellent fish bait. Young anglers who have access to scoop nets can solve their own bait problems.

Grass shrimp larvae stay at the surface most of the time and the fact that brine shrimp larvae swim at the surface is the reason they are considered the best food.

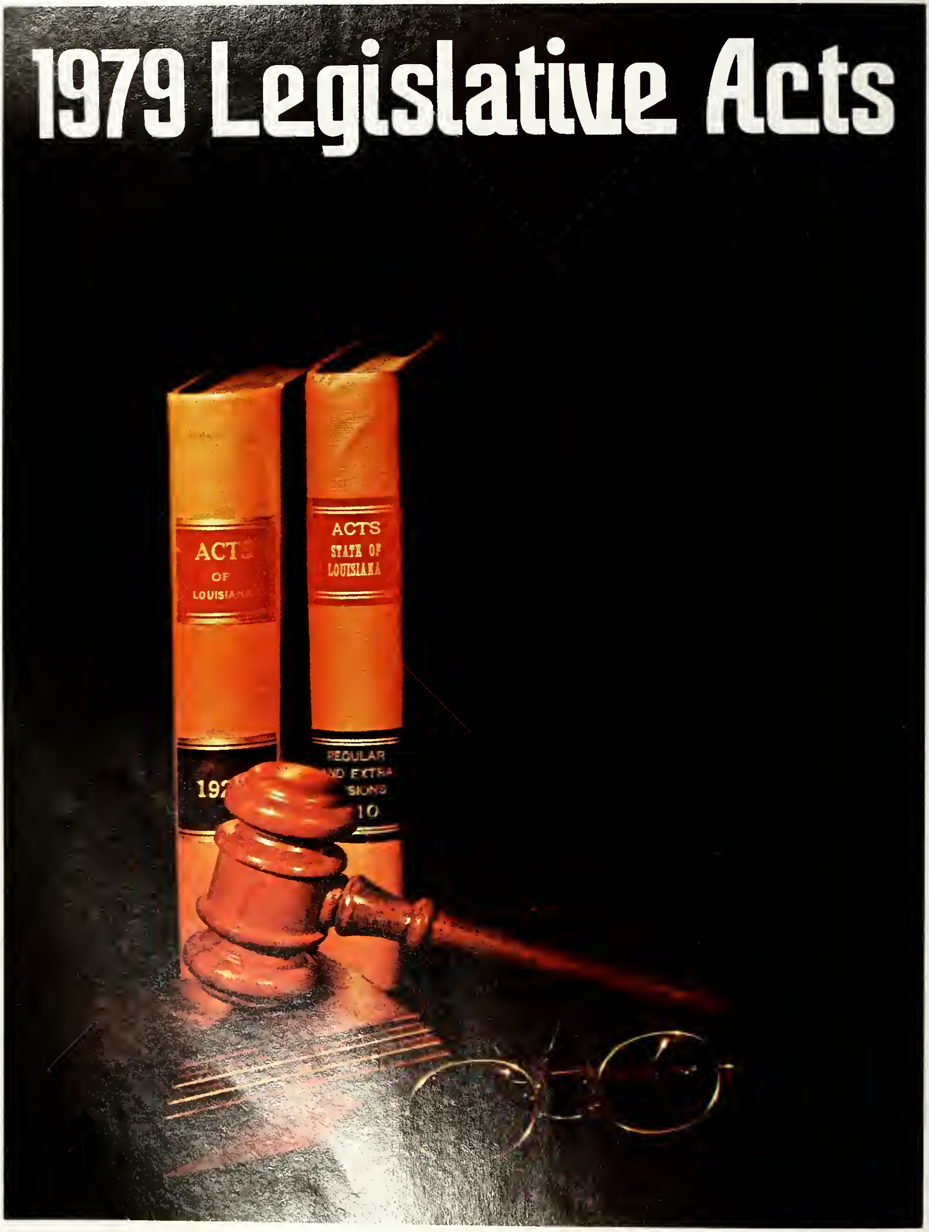
Do not feed the grass shrimp zoeae more than they can eat in several hours. Because grass shrimp are transparent one can actually see the food in the stomach and intestines.

The magnifying glass will be helpful in observing interesting changes in the zoeae and their feeding habits. A microscope (10/25 power) will readily reveal body functions such as heartbeat and egg development.

Young people, in particular, will be fascinated by this intimate glimpse into the life cycle of the tiny shrimp that are as transparent as glass and fond of grass.

(Editor's Note: Dr. Jay V. Huner is an assistant professor in the Department of Biological Sciences at Southern University, Baton Rouge. He wishes to thank Drs. Joe Black, Robert Brick, David DeMont, James Reynolds and H. Sikora, and Guthrie Perry for assistance in obtaining reference material.)

1979 Legislative Acts



These acts, unless otherwise specified, became effective September 7.

NEW LAWS PERTAINING TO ...

HUNTING AND TRAPPING

Act 186

Prohibits the use of hooks or traps with teeth for the purpose of taking wild quadrupeds.

Act 285

Changes wording in the present law prohibiting the hunting of furbearing animals with headlights to include the prohibition of all artificial light at night.

FISHING

Act 226

Sets boundary line dividing salt and fresh water areas. Provides for mesh sizes of hoop nets, seines, trammel nets, and gill nets used in different areas. Prohibits the use of monofilament trammel and gill nets south of established boundary line. Monofilament is legal south of inside/outside line as described in R.S. 56:495, by permit only. Effective upon governor's signature, July 1979.

Act 277

Grants exclusive control of commercial as well as game fish to the Louisiana Wildlife and Fisheries Commission.

Act 278

Specifies legal methods of taking fresh and salt water game and commercial fish. Also provides that the flukes or throats on crawfish traps shall not exceed two inches.

Act 282

Allows the Louisiana Wildlife and Fisheries Commission to prohibit the taking of any species of fish for not more than a three-year period, in accordance with the Administrative Procedures Act.

Act 287

Extends the prohibition of the purchase or sale of freshwater game fish to include all game fish whether taken in or out of state except that game fish imported from out-of-state may be sold provided they are tagged with official permits from the conservation agency in state-of-origin.

SEAFOOD
(Shrimp, Oysters, Clams)

Act 178

Prohibits the use of dredges or scrapers to take oysters from Calcasieu Lake natural oyster reefs, which the legislature finds in danger of being destroyed due to dredging and scraping. Establishes civil penalty of $500 for violation.

Act 280

Provides that the taking of crabs by trawls in inside waters is permitted only during open shrimp season and with a shrimp trawl license.

Act 284

Allows the holder of a shrimp seine or trawl license to sell, in addition to the legal size shrimp caught, any other fish or crustaceans which happen to be caught in the shrimp seine or trawl provided they are legal size.

Act 286

Prohibits use of double beam trawls or butterfly nets having individual nets of more than twelve feet measured horizontally or vertically each or a single beam trawl or butterfly net greater than twenty-two feet measured horizontally or vertically.

Act 288

Provides penalties for violation of bi-valve (oyster, clams, and other mollusks) industry laws.

Act 291

Limits shrimp trawl vessels to one trawl fifty feet in length or less plus one test trawl in inside waters. Provides that in outside waters no vessel shall pull more than two trawls plus one test trawl. Allows two trawls of no more than fifty feet in length plus one test trawl in Breton and Chandeleur Sounds. Defines test trawl as a trawl of not more than sixteen feet in length which is exempt under R.S. 56:500(A) from the licensing requirement.

Act 304

Provides regulations for containerization of shucked oysters and for immediate tagging at the dock prior to shipping.

Act 416

Provides for oyster dredging regulations.

LICENSES

Act 242

Provides that non-residents may participate in field trials, conducted by recognized field trial associations that are preregistered with the Louisiana Department of Wildlife and Fisheries, without being required to purchase a hunting license, provided he does not kill game or wild birds.

Act 245

Provides that certain disabled veterans who have a permanent service connected disability of 50% or more shall receive free hunting and fishing licenses.

Act 279

Requires non-resident retail dealers of commercial fish to pay an annual license fee of $50.

Act 281

Requires that non-resident wholesale fish dealers pay an annual license fee of $150.

Act 283

Deletes the requirement that the license number of a vessel be painted on the bow and displayed on the mainsail.

Act 305

Reduces non-resident alligator hunting license fee from $500 to $150.

Act 417

Requires that all non-resident commercial fishermen taking commercial finfish, crabs, shrimp, or bait species purchase fishing, net, and boat licenses between January 1 and January 31 of each calendar year. Provides that vessel and gear licenses for a newly acquired vessel may be obtained within 45 days of acquisition of the vessel.

LAND ACQUISITION

Act 230

Omnibus Bond Authorization Act—

Provides $17,000,000 over a period of five years for the purpose of land acquisition by the Department of Wildlife and Fisheries for public hunting and wildlife management areas.

Act 231

Capitol Outlay Bill—Provides $1,750,000 immediately for the purpose of acquiring public land for hunting and fishing.

Act 388

Appropriates $250,000 to the Department of Wildlife and Fisheries out of the state general fund for the purpose of acquiring 450 acres of wetlands. Effective upon governor's signature, July 1979.

WILDLIFE MANAGEMENT, ENVIRONMENT

Act 449

Environmental reorganization of State agencies regulating air and water resources and pollution. Becomes effective January 1, 1980.

Act 481

Sets up a cooperative environmental action program entitled "Louisiana Acres for Wildlife" to produce and maintain suitable food and habitat conditions for wildlife. The program will supplement existing Louisiana Department of Wildlife and Fisheries programs by providing wildlife management recommendations to private landowners.

(Editor's Note: As this issue went to press, there were a number of legislative bills which had passed both the Senate and House of Representatives but had not been assigned act numbers. These new laws will be made available to the sportsman at a later date.)

PIE'S POTPOURRI

By Marian Pie Pendley

The next time you're asked "What's new" you can answer . . . *clams*. For clams and the clam industry are certainly new to the Louisiana scene.

Louisiana clams were introduced recently in a New Orleans restaurant campaign that showed Louisianians how to cook these tasty shellfish. And from the response, they will probably be accepted and take their rightful place alongside shrimp, oysters, crabs, and crayfish. Quahogs, also known as chowders, are the only clams taken in Louisiana's newest fishery. Traditionally, they are used in the making of chowder, but minced, diced, or ground and you have the basic ingredient for making many of the favorite dishes of Louisianians.

The late Capt. Baldo Pausina was the one responsible for introducing clams to Louisiana. For many years he studied the possibilities of harvesting Louisiana clams in commercial quantities. In his quest for oysters he discovered there were great concentrations of clams in offshore waters. He kept abreast of changes in the East Coast clam operations and conferred with biologists of the Department of Wildlife and Fisheries about his theory that Louisiana had the potential of becoming an important source of clams.

Finally in 1976, Pausina was granted a clam lease in the Battledore Reef area of Breton Sound. Ron Dugas, biologist with Wildlife and Fisheries, was assigned to monitor the biological aspects of clam harvesting in Louisiana waters. For the first three years nearly all of the supply harvested was sold to operations on the East Coast. But the demand from that source abated as they recovered from problems with pollution and over harvesting, so it became evident that, in order to make the fishery economically feasible, the clams should be harvested in a wider area . . . and what more logical place than Louisiana.

By this time, Capt. Baldo's son Ralph, his cousin Stanley, and Stanley Pausina's partner in he New Orleans Oyster and Seafood Corporaton, Z.T. Franks, organized a plan for introducing Louisiana clams to the state.

Clams, though bearing some resemblance to oysters, must be treated differently when using them in recipes. One important consideration in cooking with clams is to remember that they must be tenderized by mincing, chopping, or pre-cooking. So while the men were experimenting with trawls, dredges, and the best way to harvest the clams, the women in the Pausina family were busy with their own experiments. Stanley's wife, Virgina, and Ralph's mother, Katie, worked for nine months to create clam recipes that would satisfy the southern appetite. Here they are:

STUFFED MUSHROOMS WITH CLAMS

8 oz. (1 cup) fresh chopped clams
2 cloves garlic, crushed
1 cup chopped green onion
16 large fresh mushrooms
1 stick butter or margarine
1 teaspoon parsley
2 slices wet bread
2 tablespoons seasoned bread crumbs
Black pepper to taste
Red pepper to taste

Clean fresh mushrooms and remove stems. Chop stems and sauté in butter with green onions. Add garlic and parsley. Fry off clams and then put in sauté mixture, using the liquid from the clams. Add 2 slices wet bread, bread crumbs and a little Parmesan cheese, if desired. Mix together well. Add black pepper and red pepper to taste.

Then sauté mushroom caps in 2 tablespoons of butter. Remove caps from frying pan and stuff with clam mixture. Bake in 350° F., for 15 minutes. Serve hot with lemon juice squeezed on top of mushrooms.

FRIED CLAM STRIPS

1 pint fresh clam strips
1 cup plain flour

Drain clams in colander. Roll clam strips well into flour. Have hot grease at least 4 inches deep and drop in clams one at a time. When done they will come to the top and float. Drain clams on absorbent paper towel.

CLAM STUFFING

1 pint fresh chopped clams
4 oz. can mushrooms, stems & pieces with liquid (optional)
1 stick butter or margarine
1½ cups chopped green onion
3 cloves garlic, crushed
1 tablespoon parsley flakes
1/3 cup of seasoned bread crumbs
3 slices of wet bread
Black pepper to taste
Red pepper to taste

Sauté green onion in butter. Add mushrooms including liquid. Add garlic and parsley. Fry off clams and then put in sauté mixture. Use the liquid from the clams. Add bread crumbs a little at a time. Then add wet bread. Mix well. Add black pepper and red pepper to taste. Make 2 cups stuffing.

SPAGHETTI WITH WHITE CLAM SAUCE

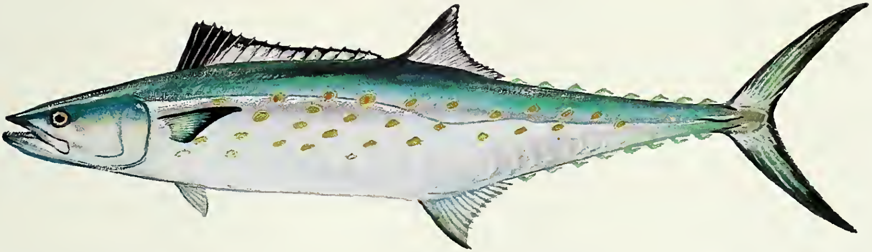
8 oz. (1 cup) fresh chopped clams
½ stick butter or margarine
1/3 cup olive oil
1 tablespoon parsley flakes
2 cloves garlic, crushed
1 pkg. (12 oz.) spaghetti, cooked and drained
Parmesan cheese

In medium skillet, slowly heat olive oil and butter. Add garlic, parsley and clams. Simmer covered for 10 minutes. Serve hot over spaghetti. Sprinkle with grated Parmesan cheese. Serves 4.

LOUISIANA CLAM CHOWDER

8 oz. (1 cup) fresh chopped clams
6 slices bacon
½ cup chopped onions
3 cups boiling milk
2 cups boiling water
1 cup cubed pared potato
2 tablespoons flour
½ stick butter or margarine
½ teaspoon salt

In a large saucepan, sauté bacon until crisp. Drain and crumble bacon; set aside. In bacon drippings, sauté onion until golden; stir in flour and salt. Slowly stir boiling water into mixture in saucepan. Add potatoes. Bring to boiling, stirring. Reduce heat; simmer, uncovered, 20 minutes or until potatoes are tender. Add milk, clams, bacon and butter. Simmer 10 minutes more. Makes 5 servings.



FISH OF LOUISIANA

ILLUSTRATED BY DUANE RAVER, JR.

SPANISH MACKEREL

The Spanish mackerel (Scomberomorous maculatus) is one of Louisiana's most prized game fish.

Although the Spanish mackerel can be caught in Louisiana waters year round, it is a migratory species. Each spring the fish move northward in three separate migratory patterns. One route takes them up the Atlantic coast from Florida, occasionally as far as Maine, and back.

They have two migratory patterns in the Gulf of Mexico: one from Florida northward each spring to Louisiana and back, the other from Mexico to Texas and back. One fish tagged in Port Aransas, Texas, was returned from Vera Cruz, Mexico. Although there are other very closely related species, most researchers now believe the Spanish mackerel is restricted to the Western Atlantic coast of the United States and the Gulf of Mexico.

Spanish mackerel spawn repeatedly from April until September. They spawn closer to shore in more shallow water than does the king mackerel.

Like the shark and its large cousin the king mackerel, the Spanish mackerel lacks a swim bladder and must keep on the move or sink. It swims fast and usually feeds near the surface. The fish form into huge schools of similar sized individuals which occasionally pass near shore in their migrations. They frequently enter tidal estuaries, bays, and lagoons and can be taken by fishermen along the Louisiana coast even up into Lake Pontchartrain.

The Spanish mackerel is a beautiful fish. It is described as being dark blue to silvery with many small yellowish or olive oval spots on both sides of its body. Although the fish is reported to grow to 20 pounds, a fish of some 10 pounds is considered large. The Louisiana record is 10 pounds and 9 ounces. The fish was taken in August of 1072 by Mike LeBlanc.

The angler who happens upon a school of Spanish mackerel should have little difficulty catching fish. According to one experienced angler, when they are hungry they will strike practically any type of small flashing lure that moves through the water. They are excellent sport on light tackle and it's not unusual when fishing offshore to hook two Spanish mackerels at a time. They can be taken on jigs, lures, spoons, and live shrimp or minnows.

The small razor-like teeth can slash a line in seconds, so a stout wire leader (number 1 or 2) is recommended. When feeding, the fish will strike at anything, so the angler should use a black swivel to keep the fish from striking at the swivel and cutting the line. The fish's sharp teeth can also slash the hand of an unwary fisherman, so whenever one is attempting to remove a deeply imbedded hook it's a good idea to use pliers.

The Spanish mackerel is a delicious food fish. A simple and tasty method of cooking is to broil the fillets in butter and garlic. Sprinkle them with lemon juice just prior to serving.